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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,810	11/13/2001	Debasis Majumdar	82857LMB	5670

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EXAMINER

WYROZEBSKI LEE, KATARZYNA I

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 02/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/008,810	MAJUMDAR ET AL.	
	Examiner	Art Unit	
	Katarzyna Wyrozebski Lee	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-35, 37-46 and 49-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-35, 37-46 and 49-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

After careful reconsideration of the claims, second non-final rejection is issued as some claims that were objected to should have been rejected. In addition, since this application is not the first one to be allowed in the line of the co-pending application a double patenting rejection will be stated as well. The examiner apologized any inconvenience this may have caused.

Specification

1. Examiner acknowledges applicant's amendment to the specification cross-referencing other pending applications. The examiner would like to further point out that the Attorney's Docket Number should be deleted from the paragraph.

Double Patenting

2. Claims 14-35, 37-46, 49-51 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2- 7, 8-46 of copending Application No. 10/008428. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

Co-pending application discloses imaging member containing matrix polymer and clay intercalated with block copolymer. Block copolymers of '428 contain block compatible with

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clay that is hydrophilic and block that is compatible with matrix polymer that is hydrophobic.

The block copolymers and matrix polymers disclosed in '428 encompass the polymers in the pending claims of present invention.

The clay component is also smectite clay, wherein the properties of surface resistivity and Young's modulus that depend on the composition will also intrinsically overlap.

In view of the above disclosure, it would have been obvious to one having ordinary skill in the art, that when utilizing claims of the present invention one would arrive at the claims of '428 now allowed.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

3. Claims 14-35, 37-46, 49- 53 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2-15, 17, 19-50 of copending Application No. 10/006545. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

Co-pending application '545 discloses composition for molded article comprising matrix polymer and clay wherein clay is intercalated with block copolymer. The block copolymer of '545 has one block that is hydrophilic and compatible with clay. Second block is compatible with matrix polymer.

The clay of '545 is smectite type clay utilized in ratio of 99:1 to 1:99 with the intercalating block copolymer. The matrix polymers of '545 overlap with the matrix polymers of

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present invention, which would further render properties such as Young modulus and surface resistivity intrinsic.

The article of '545 is layered article that encompasses articles of the present invention as they contain base that would indicate layered nature.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention that when utilizing claims of present invention one would arrive at the claims of '545.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 14-35, 37-46, 49-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over FISHER (US 6,579,927).

The prior art of FISHER discloses composition for nanocomposite material comprising block copolymer, clay and matrix copolymer.

The block copolymer of FISHER has block (A) compatible with the clay component and block (B) compatible with the matrix resin. According to specification of FISHER, block (A) is

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of hydrophilic nature and it includes polyethylene oxide (col. 3, lines 40-55). Number average molecular weight of the polyethylene oxide is in a range of 100-5,000 (claim 9).

Structural unit (B) is compatible with matrix polymer and can have the same monomers as the matrix polymer (col. 3, lines 61-66). Specification (col. 4, lines 10-15) discloses polyamides as one of the species of structural unit (B). The number average molecular weight of the polyamide would then be 100-20,000 (claim 9).

The polyether segment of the block or graft co-polymer of the prior art of FISHER has at least 2 monomeric units and polyamide segment has the same or larger amount of monomers as polyether segment. Specification further discloses that the segment (A) contains 5-20 monomeric units (col. 3, lines 56-60). Therefore the ratio between polyether segment and polyamide segment is in a range of 1:1 - 95:1 to 1:1 - 1:95.

The matrix polymer of the prior art of FISHER is selected from polyesters such as polyethylene terephthalate, polyamides, polyolefins such as polyethylene or polypropylene and the like (col. 3, lines 11-25), examples further teach polystyrene.

Clay component of the prior art of FISHER is smectite clay either natural or synthetic and it is selected from clays such as montmorillonite (col. 2, lines 42-54). Clay is utilized in an amount ratio of 0.01-1 to 100:1 with the block copolymer. The ratio of clay to matrix polymer is 1:200 to 2:1 (col. 4, lines 30-34). Based on the ratios depicted by the prior art of FISHER, the amount of matrix polymer is at least 50%.

In the process of the prior art of FISHER the clay component is first modified with block copolymer and mixed with suitable matrix polymer to form nanocomposite. Intercalation of the block component between the clay platelet is a well-known process, which occurs in this type of

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reaction and upon shearing action with matrix polymer such clay can further exfoliate (col. 4, lines 45-59). The examples further teach exfoliation, which further means that the clay had to be also intercalated beforehand.

Resulting composition has tensile modulus higher by 10 – 100 % (examples 1 and IV). Since the components of the prior art of FISHER overlap with the components of the present invention in both types of polymers and clays and the amounts, the limitation of the surface resistivity would also overlap.

The prior art of FISHER discloses that already patented composition can be utilized to make any type of molded article.

The composition of the prior art of FISHER discloses PEO/PA block or graft copolymers intercalated in between the clay component and mixed with matrix polymer to form a moldable article.

In the light of the above discussion it would have been obvious for one having ordinary skill in the art at the time of the instant invention to utilize the prior art of FISHER as depicted in the rejection above and thereby obtain the claimed invention. The prior art of FISHER renders the present invention obvious because it teaches and thereby suggests using PEO and PA as block of one copolymer.

6. Claims 49, 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over FISHER (US 6,579,927) as applied to claims 1-34, 37-45, 48-51 above, and further in view of KURATSUJI (US 5,939,183).

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The discussion of the disclosure of the prior art of FISHER from paragraph 5 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of the prior art of FISHER is explicit limitations of the polyamide polymers that can be utilized to make PEO/PA block copolymers.

With respect to the above difference, the prior art of KURATSUJI discloses PEO/PA block copolymer utilized in film forming.

The polyamide block is selected from monomers that are both aliphatic and aromatic (col. 1, lines 42-59).

Utilizing the polyamide made from the polymers of KURATSUJI allows one of ordinary skill in the art to form moldable and extrudable article.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize the PEO/PA copolymer of KURATSUJI and in the composition of FISHER and thereby obtain the claimed invention. Utilizing block copolymer of KURATSUJI would still result in moldable article as taught in FISHER.

The rejection of record has been re-applied for the following reasons. The recitation of base "for an imaging member" is a recitation of intended use. The claim recites a base, which can be formed from the composition comprising intercalated clay and matrix polymer. The prior art of FISHER, however, does teach that composition of the prior art can be utilized to make molded articles of any kind. For example, if considering base for the photographic film, the base

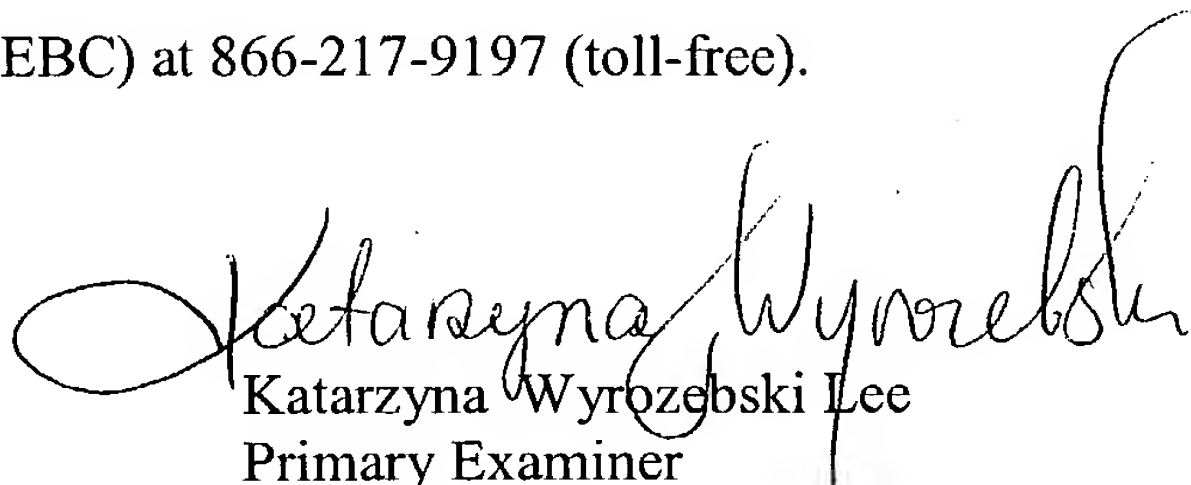
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is molded. In newly added claims the applicant require that the base be used in sporting article or medical implement. Although not very clear what applicants mean by "implement" these articles can also be molded. In any event, the patentable weight is given to the composition of the article and not its intended use.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna Wyrozebski Lee whose telephone number is (571) 272-1127. The examiner can normally be reached on Mon-Thurs 6:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Katarzyna Wyrozebski Lee
Primary Examiner
Art Unit 1714

kiwl
February 17, 2004